

WHAT IS CLAIMED IS:

1. An isolated polypeptide having an amino acid sequence at least 80 % identical to an amino acid sequence as set forth in a sequence selected from the group consisting of SEQ ID NOS: 2, 4, 6, and 8 over a region at least 40 amino acids in length when compared using the BLASTP algorithm with a wordlength (W) of 3, and the BLOSUM62 scoring matrix.

2. The isolated polypeptide of claim 1 selected from the group consisting of SEQ ID NOS: 2, 4, 6, and 8.

3. The isolated polypeptide of claim 1 that specifically binds to an antibody that specifically binds to a polypeptide selected from the group consisting of SEQ ID NOS: 2, 4, 6, and 8.

4. An isolated nucleic acid having a sequence that is at least 80 % identical to a polynucleotide having a sequence selected from the group consisting of SEQ ID NO: 1, 3, 5, and 7 over a region of at least 100 nucleotides in length when compared using the BLASTN algorithm with a wordlength (W) of 11, M=5, and N= -4.

5. The isolated nucleic acid of claim 4 that hybridizes to a sequence selected from the group consisting of SEQ ID NOS: 1, 3, 5, and 7 under conditions of high stringency including 50% formamide, 5X SSC, 5X Denhardt's solution, 10 mM sodium phosphate, pH 6.5, 100 µg/ml salmon sperm DNA and at 42° C.

6. The isolated nucleic acid of claim 1 having a sequence selected from the group consisting of SEQ. ID NOS: 1, 3, 5, and 7.

7. A vector comprising the isolated nucleic acid of claim 4 operably linked to a heterologous promoter.

8. A method of screening whether an agent, conjugate or conjugate moiety is a substrate of a transporter, comprising:

providing a cell expressing a nucleic acid as defined by claim 4 to produce a transporter encoded by the nucleic acid in an outermembrane of the cell;
contacting the cell with an agent, conjugate moiety or conjugate; and
determining whether the agent, conjugate moiety or conjugate passes through the transporter.

9. The method of claim 7, wherein transporter encoded by the nucleic acid has the sequence of SEQ. ID NO: 2.

10. The method of claim 9, wherein the cell is a Chinese hamster ovary cell, a human embryonic kidney cell or an oocyte.

11. A method of screening whether an agent , conjugate or conjugate moiety binds to a transporter;
contacting a transporter having a sequence as defined in claim 1 with an agent, conjugate or conjugate moiety;
detecting presence or absence of binding between the agent , conjugate or conjugate moiety and the transporter.

12. The method of claim 11, wherein transporter encoded by the nucleic acid has the sequence of SEQ. ID NO: 2.

13. A conjugate comprising an agent linked to a conjugate moiety for a transporter having an amino acid sequence as defined by claim 1, wherein the conjugate shows a Vmax of at least 1% of taurocholate for the transporter wherein the agent has a pharmaceutical activity without the conjugate moiety, and the conjugate has a greater Vmax for the transporter than the agent without the conjugate moiety.

14. A method of manufacturing a pharmaceutical composition,
comprising;
linking an agent to a conjugate moiety to form a conjugate wherein the conjugate is transported by a transporter as defined by claim 1 with a higher Vmax than the agent alone;
formulating the conjugate with a carrier as a pharmaceutical composition.

15. A method of treatment comprising;
administering to a patient a conjugate comprising an agent linked to a
conjugate moiety wherein the conjugate is transported by a transporter as defined by claim 1
with a higher Vmax than the agent alone.

16. The method of claim 12, wherein the conjugate is administered orally
to the patient.

17. The method of claim 12, wherein the conjugate is administered
intravenously to the patient.

18. An antibody that specifically binds to a polypeptide having an amino
acid sequence designated SEQ ID NO:2, 4, 6 or 8.

19. The antibody of claim 18 that is a monoclonal antibody.

20. The antibody of claim 18 that is selected from the group consisting of a
mouse antibody, a chimeric antibody, a humanized antibody or a human antibody.

21. A method of producing an antibody, comprising
immunizing a mammal with a protein comprising an amino acid sequence
selected from the group consisting of SEQ ID NO:2, 4, 6 and 8, and immunenic fragments
thereof;

collecting B cells from the mammal;
immortalizing the B-cells
selecting an immortalized cells producing an antibody that specifically binds
to a protein comprising an amino acid sequence selected from the group consisting of SEQ
ID NO:2, 4, 6 and 8.

22. A method of screening agents, conjugates or conjugate moieties for
capacity to be substrates for a transporter, comprising

providing a cell expressing a transporter comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 2, 4, 6 and 8, the transporter being situated in the plasma membrane of the cell;

contacting the cell with an agent, conjugate or conjugate moiety; and

determining whether the agent, conjugate or conjugate moiety passes through the plasma membrane via the transporter.

23. A method of screening agents, conjugates or conjugate moieties for capacity to agonize or antagonize a transporter, comprising

contacting a cell expressing a transporter comprising an amino acid sequence selected from the group consisting of SEQ ID NOS: 2, 4, 6 and 8, the transporter being situated in the plasma membrane of the cell; with an agent, conjugate or conjugate moiety and a known substrate of the transporter;

determining whether the agent agonizes or antagonizes uptake of the known substrate into the cell in comparison with a control cell expressing the transporter contacted with known substrate without the agent, conjugate or conjugate moiety.

24. The method of claim 23, wherein the known substrate is taurocholate or estrone-3-sulfate.

25. An isolated nucleic acid having a sequence that is at least 80 % identical to a polynucleotide having a sequence of SEQ ID NO: 19 over a region of at least 100 nucleotides in length when compared using the BLASTN algorithm with a wordlength (W) of 11, M=5, and N= -4.

26. The isolated nucleic acid of claim 25 that hybridizes to a polynucleotide having a sequence of SEQ ID NO:19 under conditions of high stringency including 50% formamide, 5X SSC, 5X Denhardt's solution, 10 mM sodium phosphate, pH 6.5, 100 µg/ml salmon sperm DNA and at 42° C.

27. The isolated nucleic acid of claim 25 having a sequence of SEQ. ID NOS: 19.